

AREAS OF COMMON PLANE FIGURES

circle	--- $\pi r^2 = 1/4 \pi d^2 = .785 d^2 = 78.5\%$ of enclosing square
sphere	--- $4\pi r^2 = 12.57 r^2 = \pi d^2$
triangle	--- $1/2 bh$
ellipse	--- 78.54% of enclosing rectangle
hexagon	--- $0.866 (\text{distance between flats})^2$
octagon	--- $0.822 (\text{distance between flats})^2$
annulus	--- $0.7854 (O.D.^2 - I.D.^2)$

VOLUME OF COMMON SOLID SHAPES

sphere	--- $4/3 \pi r^3 = 4.189 r^3 = 1/6 \pi d^3 = 52.36\%$ of enclosing cube
cylinder	--- $\pi r^2 h$ or 78.54% of enclosing box
cone	--- $\frac{\pi}{3} r^2 h$ or $\frac{h}{3}$ (area of base)